# Long Term Sustainment of Digital Information for Science and Engineering: Putting the Pieces Together

## Breakout Discussions

Sudarsan Rachuri

# LTKR NIST WORKSHOP 2006

Main themes

- a view of LTKR as an archiving process
- an emphasis on business case development.

Main Issues

- lack of support & understanding of LTKR in the engineering community
- An economic model to rationalize archiving
- lack of formal methods and standards for long term retention of engineering knowledge
- uncertainty in the utility of the archived data, inefficient archival procedures
- Clear Policy guidelines and cost-benefit models

NISTIR 7386

**Long Term Knowledge Retention Workshop Summary**

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December 2006

U.S. Department of Commerce
*Carlos M. Gutierrez, Secretary*

Technology Administration
*Robert Cresanti, Under Secretary of Commerce for Technology*

National Institute of Standards and Technology
*William Jeffrey, Director*

# Common Points of Discussion

- **What are we preserving? What are digital objects?**
  - Physical, Logical, Conceptual (Ken) and its relationships
- **Risk of Data Loss in Preservation Environments**
  - Increasing loss of digital information
- **Strategy to manage a rising tide of electronic records**
  - Business case for digital archival
  - Is it possible or feasible to archive all digital data automatically and in a cost effective way?
  - Information explosion
- **Plan for continuing technology change and rising user expectations**
  - Archival Design Plan for Change
  - Proliferation of digital formats with hardware and software dependencies.

These points were discussed in 06

# Common Points of Discussion

- **Social, legal, and ethical issues**
  - Legal Deposit of Digital Publications
- **Develop an understanding of the archival usage context.**
  - Digital preservation requirements
  - How much functionality can or must be preserved?
  - Maintaining digital information intact, while accessing this information in a dynamic use context – Digital Preservation Paradox?
- **Digital record integrity and authenticity**
  - Procedural/technical methods of authentication for preserved electronic records

These points were discussed in 06

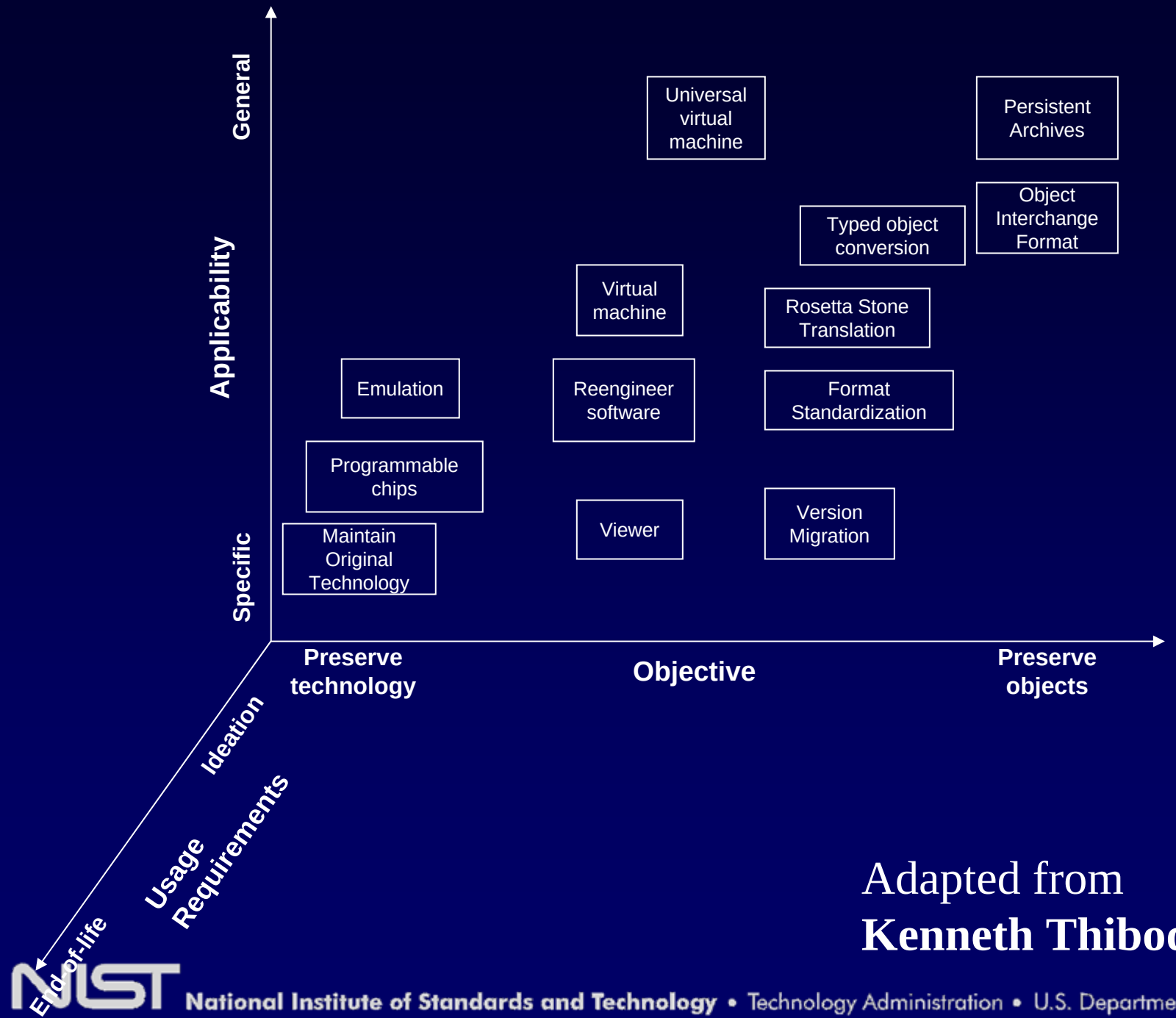
# Implementation Points of Discussion

- **Digital Archival Implementation and Best Practices**
  - Tools and Architecture
  - Methods, procedures, and rules of long-term preservation
  - Workflow Processes
  - Metadata Policies
  - Archival Policy
  - Metrics to evaluate archival methods
- **Hardware Issues**
  - Storage Media
  - Archival Networks
- **Community of Interest for Digital Preservation**
  - Investigate the digital preservation needs of universities and research labs.
  - Address the issue of decrease of financial resources available for libraries and archives

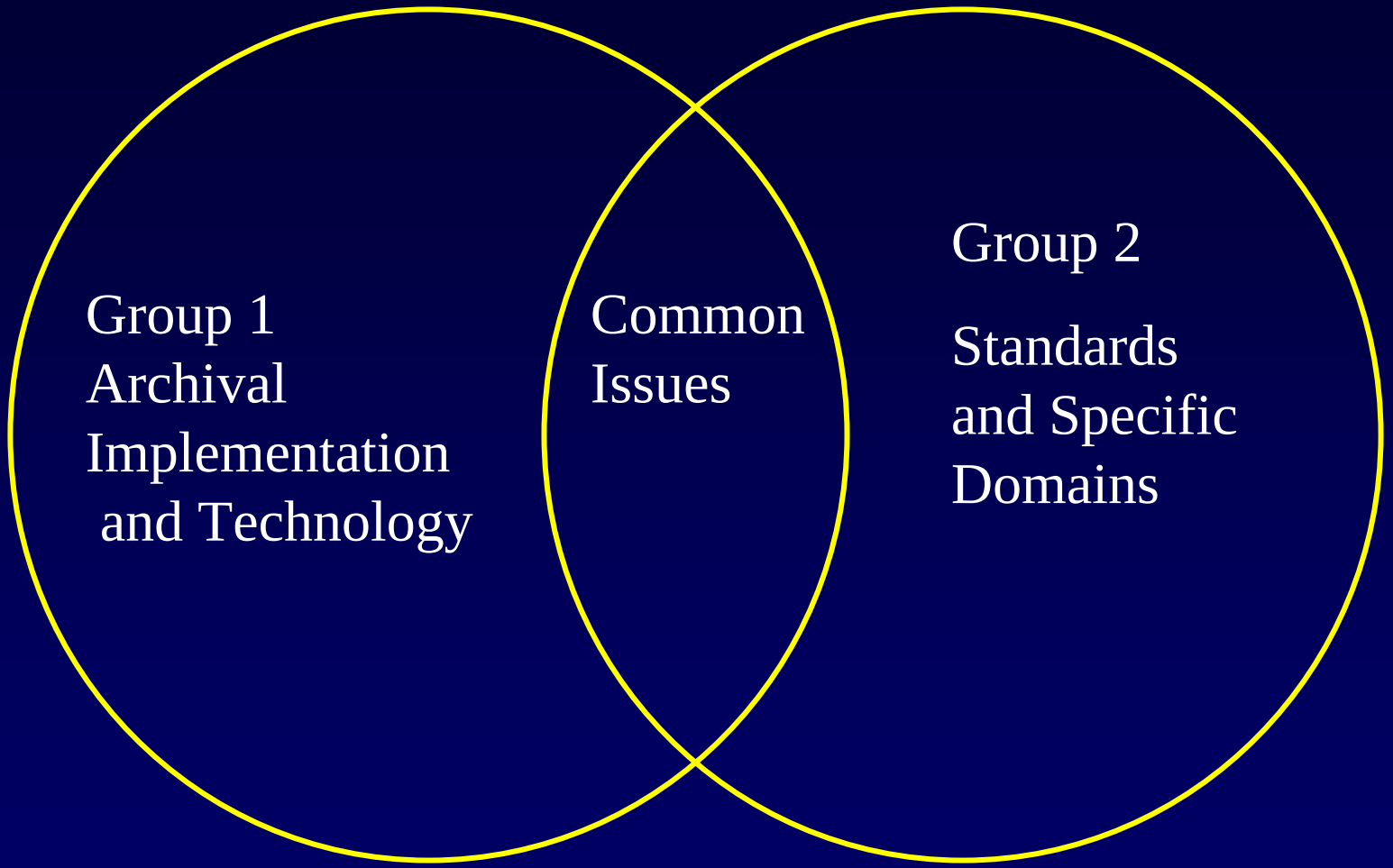
These points were discussed in 06

# Standards/Domain Points of Discussion

- **Role of standards in solving fundamental issues with respect to digital information**
  - **Multimedia formats**
  - **Possible extensions to OAIS**
  - **Domain specific extensions to OAIS**
- Product Engineering Information Archival
- **IPR, Copyright, License Issues**




Adapted from
**Kenneth Thibodeau**


Group 1
Archival
Implementation
and Technology
Common
Issues
Group 2
Standards
and Specific
Domains

**Long Term Sustainment of Digital Information for Science and Engineering: Putting the Pieces Together**
Team Report/Recommendation Template

| | |
|---|---|
| Breakout Team ID | |
| Identify: Problem or Issue | |
| Analyze: Root Cause | |
| Recommendation | |
| Benefit | |

| Plan: Action(s) to implement | Owner/Time Frame |
|---|---|
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**Long Term Sustainment of Digital Information for Science and Engineering: Putting the Pieces Together**

Team Report/Recommendation Template

Sample

| | |
|---|---|
| Breakout Team ID | End User Perspective |
| Identify: Problem or Issue | How to map their usage scenario to the data available in the archival? |
| Analyze: Root Cause | The usage requirements have to be clearly encoded into the submission information package. |
| Recommendation | Define Core Data Elements for Archival<br>Extend CDE to encode usage requirements for different scenarios<br>Define Metrics for archival |
| Benefit | Minimize information explosion<br>Reduce loss of information |

| Plan: Action(s) to implement | Owner/Time Frame |
|---|---|
| Study OAIS in detail for further extensions to define CDE, CDE requirements<br>Study OAIS – PDI concept to define metrics<br>Study multimedia data formats (MPEG) to understand the feasibility for defining metrics | Chris, Bill, Sudarsan, Wong, Mahesh |
| Based on the defined metrics do a preliminary investigation for Archival Testbed | Sudarsan, Sub, ... |

# Breakout Team Participants
## Team ID: Group 1
### Archival Implementation and Technology

| Name/Affiliation | Name/Affiliation |
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# Breakout Team Participants
## Team ID: Group 2
### Standards and Specific Domains

| Name/Affiliation | Name/Affiliation |
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